

German R&D institution specialised in photogrammetric- and laser-based 3D digitization technologies is looking for a robotics specialist to manufacture the basic hardware components of the 3D scanning station

## Summary

Profile type	Company's country	POD reference
<b>Technology request</b>	<b>Germany</b>	<b>TRDE20220831007</b>
Profile status	Type of partnership	Targeted countries
<b>PUBLISHED</b>	<b>Commercial agreement with technical assistance</b>	
Contact Person	Term of validity	Last update
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## General Information

### Short summary

The German computer graphics research institute has developed an innovative 3D scanning station for the automatic digitization of arbitrary artifacts and large collections of museums, archives, libraries and archives. In order to manufacture the hardware components of the system, a specialist in collaborative robotic systems is sought. Cooperation is envisaged under a commercial agreement.

### Full description

State-of-the-art 3D scanning technology offers an excellent opportunity to digitize cultural assets. The innovative technology developed by this research institute is a powerful and efficient system to capture artifacts in different sizes and weights.

The acknowledged R&D Institution conducts application-oriented research for the direct benefit of the industry and society. The institute is focusing on the development of photogrammetric- and laser-based 3D digitization technologies.

Their department of Cultural Heritage Digitization has developed the world's first autonomous and color-faithful robotic 3D scanning station for automatic digitization of arbitrary artifacts and large collections of museums, archives,

libraries and archives. There are also applications in fashion, art and forensics. The system is coordinated by a software application and is able to acquire the geometry, texture and optical material properties of any real object.

It is the first time that a system captures real objects in a fully automated way and computes closed-loop, high-resolution, true-color and true-to-scale 3D models. This lays the foundation for the economical high-throughput acquisition of entire collections in 3D and in repeatable high quality.

Currently, the 3D scanning station is a prototype that is tested and in use by seven different institutions and museums, which provide valuable feedback. The product will be commercialized and introduced into the market in small series production soon.

To achieve this, a spin-off from the research institute is currently being founded. However, as the expertise of the institute is in software, a manufacturing partner is sought to source out the hardware production and maintenance.

The hardware system is currently available in three different configurations designed for different object sizes and weights. The scanning station consists of two main hardware components: the 6D positioning system and the attached camera-based capturing device. The main subject to outsourcing is the production of the positioning system that combines a collaborative light-weight robot arm with a turntable / rotary table. While the robot arm and cameras are usually third-party products, the station's frame structure, cabling, housing, and rotary tables in different sizes have to be manufactured and integrated.

The production partner should bring in its own expertise to improve the product design and sustainability.

Cooperation is planned under a commercial agreement.

#### Advantages and innovations

- very user friendly through autonomy and automation
- high-resolution and color-faithful 3D models
- personal costs can effectively be reduced
- reduces complex required user expertise
- enables institutions to carry out large scale mass 3D digitization

#### Stage of development

**Already on the market**

#### IPR Status

**Secret know-how**

#### Sustainable Development goals

• **Goal 4: Quality Education**

## Partner Sought

#### Expected role of the partner

The German research institute is looking for a company specialised in mechanical engineering and collaborative robotic systems able to manufacture the basic hardware components of the automated 3D scanning station.

The main subject of this manufacturing partner sought is the production of the positioning system that contains a collaborative robot arm in combination with a turntable for the scanned object to be placed on. An optional task of the sought partner is to contribute in the production of the mounted capturing device that contains a high-end camera with a custom build LED ringlight and temperature sensors. Both main hardware components of the scanning station, the positioning and capturing unit, are connected through microcontrollers to a PC that controls and coordinates them with a software application developed by the research institute.

Tasks of the production service provider:

- Transfer of the hardware prototypes into small series production
- On-demand production of the hardware components of the 3D scanning station
- Limited maintenance and support of hardware components for delivered systems (first level support is provided by the spin-off, but in case hardware issues could not be resolved or need a repair or exchange, the production partner is required to take action)

Type of partnership

**Commercial agreement with technical assistance**

Type and size of the partner

- **Big company**
- **SME <=10**
- **SME 11-49**
- **Other**
- **SME 50 - 249**

## Dissemination

Technology keywords

- **002006005 - Mechanical Engineering, Hydraulics, Vibration, ...**
- **02006001 - Materials, components and systems for construction**

Market keywords

- **08002004 - Robotics**

Targeted countries

Sector groups involved